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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,849	10/24/2005	Hiroshi Fukui	71,051-007	7869
27305 7590 09/12/2008 HOWARD & HOWARD ATTORNEYS, P.C. THE PINEHURST OFFICE CENTER, SUITE #101 39400 WOODWARD AVENUE BLOOMFIELD HILLS, MI 48304-5151			EXAMINER LOEWE, ROBERT S	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 09/12/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/533,849

**Applicant(s)**

FUKUI, HIROSHI

**Examiner**

ROBERT LOEWE

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### **DETAILED ACTION**

Applicant's arguments/remarks, filed on 8/9/08, have been fully acknowledged.

#### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kleyer et al. (US Pat. 6,361,716).

First, the fillers taught by Kleyer et al. are taught be electrically conductive fillers and not heat conductive fillers. However, all of the electrically conductive fillers taught by Kleyer et al. are also inherently heat conductive (i.e., metals are well-known heat conductors). As such, Kleyer et al. teaches the limitation of instant claim 1 of employing a heat conductive filler.

Claim 1: Kleyer et al. teaches a composition comprising an adhesion promoter which is a silicone oil and having a formula which satisfies formula (A<sub>1</sub>) of instant claim 1 (16:22-23), and a thermally conductive filler, such as silver (16:38-43). Silver is well-known to be a heat conductive filler as well. Kleyer et al. further teaches that the heat-conductive filler may be in the form of a powder or flakes (4:26-27). Kleyer et al. only teaches employing a lubricant when metal flakes are used (4:37-45). Kleyer et al. makes no mention of employing a surface-treating agent or lubricant when employing metal powders, as such it is within the teachings of Kleyer et al. to employ metal powders which are not surface treated. The amount of filler present falls within the range of instant claim 1 [Comparative example 1, such composition is actually present in the working examples; the difference between comparative example 1 and the working

example is the replacement of one of the ingredients with others (see Table 1)]. In comparative example 1, there are 79.98 parts of silver filler 1.81 parts of Adhesion promoter A (which satisfies formula ( $A_1$ ) of instant claim 1) and an additional 0.70 parts of Adhesion promoter/inhibitor blend, which consists of 97% of adhesion promoter (therefore about 0.68 parts of the 0.70 parts is adhesion promoter). In total there are 2.49 parts of adhesion promoter and 79.98 parts of filler. When adjusted for the limitation which is based on 100 parts of adhesion promoter/component (A) of instant claim 1, there is about 3200 parts of silver filler per 100 parts of component (A), which falls within the range of instant claim 1.

While Kleyer et al. does not explicitly teach that the electrically conductive/heat conductive fillers are surface treated with component (A) of instant claim 1, the composition of the adhesion promoters employed by Kleyer et al. satisfies the limitations of component (A) of instant claim 1. As such, Kleyer et al. implicitly teaches that the adhesion promoter will interact with the silver flakes/silver powders, forming a surface-treated composition.

Claim 6: Kleyer et al. teaches in addition to components (A) and (B), the silicone base rubber which serves as component (C) of instant claim 6 (comparative example 1).

Kleyer et al. does not teach or suggest the limitations of instant claims 2-4.

Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enami et al. (US Pat. 6,380,301).

Claims 1, 2 and 6: Enami et al. teaches a heat conductive composition comprising a curable organopolysiloxane (component (C) of instant claim 6), a thermally conductive filler

(component (B) of instant claim 1) which is surface-treated with an oligosiloxane which may satisfy formula (A<sub>1</sub>) of instant claim 1 (component (ii) of Enami et al.) (abstract).

Enami et al. does not explicitly teach that the amount of silicone oil/surface treating agent satisfies the ratio of 500-3,500 parts by weight of component (B) per 100 parts by weight of component (A) as required by instant claim 1. However, it is well within the teachings of Enami et al. to arrive at a ratio of component (B) to component (A) which satisfies instant claim 1. Enami et al. teaches that up to 10 parts by weight of surface-treating agent/silicone oil may be employed per 100 parts of filler, which correlates to 1,000 parts by weight of filler per 100 parts by weight of component (A), which falls within the range of instant claim 1. More generally, if the amount of surface-treating agent/silicone oil is at or greater than 2.8 parts per 100 parts of thermally conductive filler, the range of instant claim 1 would be satisfied. Therefore, there is overlap between the range as claimed and the range taught by Enami et al. Therefore, it would have been obvious to arrive at the limitations of instant claim 1 through routine experimentation, motivated by the teachings of Enami et al. regarding the amount of surface-treating agent (10:40-58).

Claims 3 and 4: Enami et al. explicitly teaches employing a 1:1 mixture of spherical alumina powder having an average particle size of 10 microns and an irregular-shaped alumina powder having an average particle size of 2.2 microns, which satisfies the limitations of instant claims 3 and 4.

***Relevant Art Cited***

The prior art made of record and not relied upon but is considered pertinent to applicants disclosure can be found on the attached PTO-892 form.

***Response to Arguments***

Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection. This action is non-final owing to the new grounds of rejection which were not necessitated by Applicant's amendments.

***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT LOEWE whose telephone number is (571)270-3298. The examiner can normally be reached on Monday through Friday from 5:30 AM to 3:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-13021302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. L./

Examiner, Art Unit 1796

10-Sep-08

/Randy Gulakowski/

Supervisory Patent Examiner, Art Unit 1796